

In re Appln. of Pelz et al.  
Application No. 09/402,721

#### REMARKS

The amendments set forth above and the following remarks are believed responsive to the points raised by the Office Action dated December 4, 2002, and discussed during the interview with Examiner Sherrer on February 4, 2003.

Applicants' representative greatly appreciates the courtesy shown him by Examiner Sherrer, and further appreciates Examiner Sherrer's careful consideration of the arguments presented during the interview.

In view of the amendments and the following remarks, reconsideration is respectfully requested.

#### The Pending Claims

Claims 1-5, 7-18, 20-22, 24-33, and 36-42, are currently pending, and claims 34 and 35 that were withdrawn from consideration, are now cancelled.

#### The Office Action

For convenience, the following remarks will address the rejections in the same order they were raised in the Office Action.

Claims 4, 5, 7-18, 20-22, 24-28 and 36-41 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. According to the Office Action, the above claims rely on the term "about" to define numerical ranges, the term about being a relative term, which renders the claims indefinite. This rejection is respectfully traversed.

As an initial point, courts have repeatedly held claims employing the term "about" to be definite. See, for example, *Modine Mfg. Co. v. U.S. Intern. Trade Comm'n*, 75 F.3d 1545, 1554 (1996) (the term "about" can usually be understood in light of the technology embodied in the invention) and *Zoltek Corp.*, 48 Fed. Cl. at 300 ("The Court does not agree with Defendant's contention that a precise limit must always be attached to the term 'about'").

Moreover, the present application provides many illustrations in the specification, see, for example, page 5, lines 30-33, and the Examples, e.g., including Tables 1, 2, 3, 4, and 6.

Thus it is submitted the use of the term "about" in the present claims does not render the claims indefinite. One of ordinary skill in the art reading the claims in light of the specification would understand the scope of the term "about" as used in the claims. Accordingly, Applicants submit the rejection is improper and should be withdrawn.

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Claims 1-5, 7-15, 18, 20-22, 27, 28, 31, 33 and 37-42 were rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent No. 4267933 to Fuji Photo Film Co. Ltd. (hereinafter referred to as "Fuji") in view of Applicants' alleged admissions on pages 1-3 of the instant application. This rejection is respectfully traversed.

Neither Fuji nor Applicants (i.e., in the background section at pages 1-3 of the present specification) taken alone or in combination, disclose or suggest a method for producing beer including filtering beer through a porous membrane until such time that the porous membrane is in need of cleaning, contacting the porous membrane with an enzyme selected from the group consisting of cellulases, amylases and combinations thereof in the absence of a protease or a glucanase to clean the porous membrane, and reusing the porous membrane to continue filtering beer.

As discussed during the interview, Fuji is merely directed to the separation, purification, recovery and concentration of suspended solids, rather than providing a drinkable beverage. In fact, Fuji does not even mention beer, let alone suggest a method for producing beer including filtering beer through a porous membrane until such time that the porous membrane is in need of cleaning, contacting the porous membrane with an enzyme selected from the group consisting of cellulases, amylases and combinations thereof in the absence of a protease or a glucanase to clean the porous membrane, and reusing the porous membrane to continue filtering beer.

Furthermore, Fuji merely discloses that, in the separation, purification, recovery and concentration of suspended solids, a proteolytic enzyme and/or a cellulose-destroying enzyme may be used in a washing solution for the separation membrane, and makes no distinction at all between using one enzyme over another or a combination of enzymes over a single enzyme. Additionally, the term "enzyme" as used by Fuji can include more than one enzyme, and there is no indication in Fuji that one or more other enzymes are excluded from the washing solution.

The background section of the present application (pages 1-3) merely discloses that to prolong the life of a filter, manufacturers of membrane filters recommend cleaning the used membranes by treating them with proteases, glucanases, and xylanases, as well as with chemicals such as surfactants, acids/bases, and oxidizing agents to make them reusable (see e.g., page 2, lines 6-11). There is no suggestion in the background section of a method for producing beer including filtering beer through a porous membrane until such time that the porous membrane is in need of cleaning, contacting the porous membrane with an enzyme selected from the group consisting of cellulases, amylases and combinations thereof in the absence of a protease or a glucanase to clean the porous membrane, and reusing the porous membrane to continue filtering beer.

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Accordingly, even assuming *arguendo* that one of ordinary skill in the art could be led from Fuji to the background section of the present specification, the combination would not lead one of ordinary skill in the art to the claimed invention.

Moreover, with respect to, for example, pending claim 2, neither Fuji nor the background section of the present specification, taken individually, or in combination, teach or suggest a method for producing beer including filtering beer through a membrane until the membrane needs cleaning, and contacting the membrane with an enzyme selected from the group consisting of cellulases, amylases, and combinations thereof in the absence of a protease or a gluconase wherein the membrane is not contacted with an enzyme other than the cellulase or the amylase.

With respect to claim 4 and those claims depending therefrom, although the Office Action asserts that cellulase having a crystalline:soluble activity ratio at 60 minutes of at least about 0.1 is a parameter that those in the cleaning art would optimize to obtain the best result, no support for such an assertion in Fuji or the background section of the present application has been provided. There is simply no teaching or suggestion in Fuji and pages 1-3 of the present specification leading one to a method for producing beer including filtering beer through a porous membrane until such time that said porous membrane is in need of cleaning and contacting the porous medium with a cellulase having a crystalline:soluble activity ratio at 60 minutes of at least about 0.1 and then reusing the porous membrane to continue filtering beer.

Accordingly, even assuming *arguendo* that one of ordinary skill in the art could be led from Fuji to the background section of the present specification, the combination would not lead one of ordinary skill in the art to the claimed invention.

In view of the deficiencies as summarized above, it is submitted the rejection is based on impermissible hindsight using Applicants' disclosure as a template to be filled in, and Applicants respectfully submit the obviousness rejection is improper and should be withdrawn.

Claims 16-17, 24 and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fuji in view of Applicants' alleged admissions on pages 1-3 of the instant application and further in view of Japanese Patent No. 52122281 to Ebara Inflico KK (hereinafter referred to as "Ebara"). This rejection is respectfully traversed.

The deficiencies of the teachings of Fuji, and the improper basis for the rejection based on Fuji in view the background section of the present application, have been summarized above.

Several deficiencies of the teachings of Ebara parallel the deficiencies of the teachings of Fuji. Ebara is directed to washing impurities from an impermeable diaphragm, and parallels Fuji in failing to disclose providing a drinkable beverage.

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Ebara also parallels Fuji in failing to even mention beer, let alone suggest a method for producing beer including filtering beer through a porous membrane until such time that the porous membrane is in need of cleaning, contacting the porous membrane with an enzyme selected from the group consisting of cellulases, amylases and combinations thereof in the absence of a protease or a glucanase to clean the porous membrane, and reusing the porous membrane to continue filtering beer.

Furthermore, Ebara discloses that, in the washing of impurities from an impermeable diaphragm, the enzyme can be protease or amylase, and thus teaches that the enzymes can be used interchangeably. Thus, even assuming arguendo that the skilled artisan could be led from Fuji and the background section of the present specification to Ebara, the combination does not lead one of ordinary skill in the art to a method for producing beer including filtering beer through a porous membrane until such time that the porous membrane is in need of cleaning, contacting the porous membrane with an amylase in the absence of a protease to clean the porous membrane and then reusing the porous membrane to continue filtering beer.

Claims 26, 29, 30, 32 and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fuji in view of Applicants' alleged admissions and further in view of an article in the *Journal of Colloid and Interface Science* by Bolay et al., (hereinafter referred to as "Bolay"). This rejection is also respectfully traversed.

The deficiencies of the teachings of Fuji, e.g., the failure of Fuji to even refer to producing beer, and the improper basis for the rejection based on Fuji in view the background section of the present application, have been summarized above.

Bolay also fails to refer to producing beer. Additionally, there is no disclosure in Bolay of cleaning membranes. Bolay merely discloses filtering dilute egg protein solutions and following the evolution of the electrical properties of membranes during the fouling process by stream potential measurements. Bolay fails to remedy the deficiencies of Fuji, and thus the combination fails to render the claimed invention obvious.

In view of these disclosures, Fuji, the background section of the present specification, and Bolay, whether taken alone or in combination, fail to disclose or suggest a method for producing beer including filtering beer through a porous membrane that progressively clogs during filtration, monitoring the streaming potential or zeta potential of the porous membrane as a measure of the extent of clogging of the porous membrane, halting filtration of the beer through the porous membrane before the porous membrane becomes fully clogged as determined by the streaming potential or zeta potential of the porous membrane, cleaning the porous membrane, and then reusing the porous membrane to continue filtering beer.

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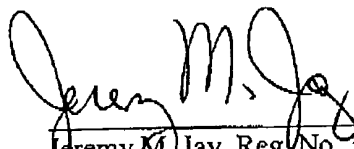
Thus, even assuming *arguendo* that one of ordinary skill in the art could be led from Fuji and the background section of the specification to Bolay, the combination would not lead those of ordinary skill in the art to the presently claimed invention. Accordingly, it is submitted the rejection is based on impermissible hindsight, and Applicants respectfully submit the obviousness rejection is improper and should be withdrawn.

*Conclusion*

In view of the amendment and remarks recited herein, the application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue.

Should there remain any issues outstanding, the Examiner is invited to call the undersigned at his Washington, D.C. office.

Respectfully submitted,



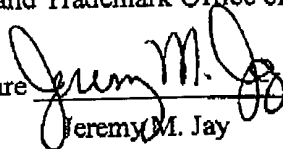
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Date: 4 Feb. 2003

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this Response to Office Action after Final Rejection (along with any documents referred to as being attached or enclosed) is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

Signature

  
Jeremy M. Jay

Date: 4 Feb. 2003